

FLIGHT

The
AIRCRAFT
ENGINEER
&
AIRSHIPS

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM

No. 774. (No. 43, Vol. XV.)

OCTOBER 25, 1923

[Weekly, Price 6d.
Post free, 7d.]

Flight

The Aircraft Engineer and Airships

Editorial Offices: 36, GREAT QUEEN STREET, KINGSWAY, W.C. 2

Telegrams: Truditur, Westcent, London. Telephone: Gerrard 1828

Annual Subscription Rates, Post Free:

United Kingdom .. 30s. 4d. Abroad .. 33s. 0d.*

These rates are subject to any alteration found necessary under abnormal conditions and to increases in postage rates

* European subscriptions must be remitted in British currency

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DIARY OF FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in the following list:—

| | | |
|---------|------|---|
| Oct 26 | .... | "Three-Ply in Aircraft Construction," by Capt. R. N. Liptrot, B.A., before I.Ae.E. |
| Nov. 1 | .... | "Present Developments in Aircraft Instruments," by Major Wimperis, before R.Ae.S. |
| Nov. 9 | .... | "Soaring Flight," by Dr. E. H. Hankin, before I.Ae.E. |
| Nov. 15 | .... | "The Thermodynamics of Aircraft Engines," by Mr. H. R. Ricardo, before R.Ae.S. |
| Nov. 29 | .... | "Airmanship at Sea," by Sqd.-Ldr. Maycock |
| Nov. 30 | .... | "The Result of Twelve Years' Welded Tube Construction and the Development of Cantilever Wings," by A. H. G. Fokker, before, I.Ae.E. |
| Dec. 1 | .... | Entries close for French Aero Engine Competition |
| Dec. 9 | .... | "Water-Cooled Aero Engines," by A. J. Rowledge, before I.Ae.E. |
| Dec. 13 | .... | "Air Strategy," by Wing Cmdr. Edmonds |
| Dec. 14 | .... | "Leader Cable Systems for Electrical Steering of Aeroplanes," by J. Gray, before I.Ae.E. |
| 1924 | | |
| Jan. 10 | .... | "Materials from the Aeronautical Point of View," by Dr. Aitchison and Mr. North |
| Jan. 24 | .... | "Fabric and Dopes," by Dr. Ramsbottom |

EDITORIAL COMMENT.



It is scarcely possible to exaggerate the importance to the Empire of the conferences that are now being held between representatives of the various Dominions and the Mother Country, and by no means the least important subject that has been, and is again to be, discussed is that of Empire communications. An equally vital problem is that of Imperial Defence, both Naval, Military, and Air. The latter is being considered by the Imperial Conference, and it has been decided to treat the proceedings so far as confidential. The former was discussed on October 19 by members of the Imperial Economic Conference, when the Secretary of State for Air, Sir Samuel Hoare, made his very important statement. A *résumé* of and extracts from this statement are published elsewhere in this issue of FLIGHT, from which the general tenor of the Air Minister's speech may be gathered. We should, however, like to call attention to one or two points in the statement, which indicate that at last there seem to be prospects of matters that have already been too long delayed being taken up vigorously.

To begin with, Sir Samuel referred to the recommendations of the Hambling Committee, which suggested the formation of one strong air-line operating company (since commonly referred to as the "Million Pound Monopoly Company"), and stated that if that company could be formed, and he had good reason to think it would be formed, it would be much easier to establish and develop the longer Imperial air routes. As enquiries at the Air Ministry elicited the information that the four existing companies had arrived at a common understanding, it may, presumably, be taken for granted that the difficulties that arose sometime ago, and to which we need make no further reference here, have been overcome, and that the four companies now operating services are to work together in the future as one harmonious whole. Thus, it would seem, only the details of the scheme remain to be settled, and the "Monopoly Company" may reasonably be expected to be "launched," on the lines suggested by the Hambling Committee. As we have

previously stated, we believe that if the new company sets to work on sound lines and in the broadest spirit, much good may result. On the other hand, the whole problem bristles with difficulties which, if not properly attacked, may well tend to hamper instead of helping progress. Until further details are available comment, therefore, is not possible.

Concerning the recommendations of the Civil Aviation Advisory Board, Sir Samuel said that he had now been able to set aside a sum for the construction of an aeroplane capable of undertaking the long-distance journey that would be required on the Imperial air routes. This, we take it, means that orders are to be placed with private constructors whose designs to specifications sent out by the Air Ministry have been accepted. Knowing something of the specifications, we are not very optimistic that such machines, when built, will be of much practical use. The amount of fuel to be carried and the size of crew contemplated will not, we fear, leave much lift available for paying load, and we think it would be wise, before going too far with experiments of this sort, to examine closely the possibilities of refuelling during flight.

On the question of airships Sir Samuel stated that the Burney scheme had been accepted in principle, and that the financial side had, in the main, been agreed. We are glad to learn officially that this is so, as we are firm believers in a future for airships no less than for heavier-than-air craft. But, as we have previously stated, we are more than a little doubtful on the technical side, mainly because there has been a good deal of talk about 5,000,000 cubic ft. airships. Our past achievements in airship work have not been such as to give us reason to believe that ships of this size could be built in this country without introducing experimental features. And we are not alone in this belief. Some of the highest airship authorities of the country have expressed, on several occasions, similar views. However, on that point we hope to have something more to say when the details of the airship scheme are known. In the meantime it is gratifying to know that a start is going to be made, and that the British Empire is not to be left entirely

behind in the competition for the world's airship traffic.

Light 'Planes at Hendon

Elsewhere in this issue will be found an announcement of a demonstration to be held at Hendon on Saturday next, when the London public will have an opportunity of seeing at close quarters several of the light 'planes that took part in the recent competitions at Lympne. We are more than pleased that this meeting has been arranged so quickly after Lympne, while the public interest in the light 'plane movement is still actively alive. In this respect the light 'plane differs from the glider, interest in which dropped after Itford last year, owing chiefly to the fact that it was not possible to demonstrate gliding in the vicinity of London.

At Hendon on Saturday there will, if the weather is reasonably good, be a speed race around the aerodrome and a get-off and alighting competition. No doubt there will also be exhibition and demonstration flights by various pilots, and as these little aeroplanes are capable of manoeuvring at low altitudes the public should be able to follow their evolutions much more closely than is possible with modern high-power, high-speed machines. Thus, although the thrill of great speed will be absent, we feel sure that this will be more than made up for by the intimacy which the "docile" character of the light 'plane makes possible. We trust that this meeting, held at rather too short notice and without much publicity, will be the forerunner of a regular series next year, when the tube extension, with a station at the aerodrome in Collindale Avenue, is in operation. It will then be possible to get to the aerodrome from the centre of London in half an hour. In the meantime visitors should keep in mind that Saturday's meeting is being held under considerable handicaps as regards ground organisation, and that they should not be discouraged by any little shortcomings there may be. Hendon in the old days was well-nigh all that an aerodrome could and should be. Hendon next spring will be even better.

Sir Percy Scott and the Long View

WHEN addressing the members of the Australian Natives Association at the Royal Colonial Institute on October 15, on the subject of the Defence of the Dominions, he once more put forward his views with sound consistency. Sir Percy said that with regard to the controversy as to the utility or otherwise of battleships, we now had something definite. A gallant Admiral of the Fleet the other day had told us that waters where there were enemy submarines were the wrong place for battleships. He (Sir Percy) quite agreed. In war-time we should not know what waters the enemy submarines were in. Therefore it would be better for our battleships to remain at home, as they did during the late War. Modern weapons, such as airships, aeroplanes and seaplanes, mines, torpedoes and submarines, had greatly strengthened the defence and weakened the attack. Any country properly defended with these weapons would be immune from overseas attack. A Japanese fleet could not go to Australia; an American fleet could not go to Japan. As regarded attack, he considered that the floating forces of nations were so menaced by air attacks from above and torpedo attacks from below that they were now unable to carry war from one continent to another, as they did in the past.

At Singapore we always had had a base. It was a very valuable one, and all that was required there now was a modern defence, incorporating all the new weapons, which would prevent any hostile battleships or any other hostile ships coming within two hundred miles of it. The cost of the proposed new docks at Singapore might be anything between

20 and 30 millions sterling, and one member of Parliament had stated that we should not get out of it under 50 millions. It was positively wicked that with the present state of unemployment in England we should be diverting 20 millions to Singapore for native labour. In the House of Commons the matter had been only treated from the political party point of view. He considered the construction of these docks a wicked, wilful, and wanton waste of the taxpayers' money, and in his opinion the overseas Dominions should contribute nothing. They should now be spending their money on modern weapons of defence instead of wasting it by supporting antique ideas originating from men who were either ignorant or who had not taken the trouble to analyse the basis of their convictions.

The French Aero-Engine Competitions.

SEVERAL entries have now been received for the French Aero-Engine Competitions, for which prizes totalling 2,000,000 francs are offered. These are: 2 Renaults, 1 Salmson, 2 Breguets, 2 Lorraine-Dietrichs, 1 Peugeot, and 1 Panhard-Levasseur. Entries are still received, at double fee, up to December 1, 1923. The main points of the rules governing the competitions were published in FLIGHT on May 4, 1922.

Singapore or the Air Force?

SPEAKING at Glasgow on October 18, Sir Robert Horne expressed the view that the Air Minister's programme did not go far enough, and he suggested that the money which it was intended to spend on the Singapore Naval Base might be better spent on air development.

THE PARNALL "PIXIE" LIGHT 'PLANE

Douglas Engine

OWING to the fact that we were unable to obtain from the manufacturers details and illustrations of the machines entered by George Parnall and Co., of Coliseum Works, Bristol, for the Lympne light 'plane competitions, it was not possible to include with the comparative scale drawings published in our issue of October 11 the drawings of the "Pixie." We have now, however, obtained these drawings, and have therefore thought that a brief illustrated description of the machines may be of interest. In our issue of October 18 several sketches showing certain constructional details of the "Pixie" were published, and to these we would refer readers, as space does not allow of publishing them again this week.

As entered for the Lympne competitions the Parnall "Pixie," designed by Mr. Bolas, chief designer to George

deal to recommend it. At any rate, we offer the suggestion for what it is worth. It should not be difficult to design a fuselage in which a central portion can be interchanged for one with two seats and carrying a larger wing or wings. Thus, if the owner-pilot desires to go alone, but to travel reasonably fast, he would use the machine with small wings and one seat. If he wished to take a passenger he would merely disconnect the central portion of the fuselage and replace it with the two-seater, large-wing portion. In other words, he would attach his "side-car."

However, to return to the Parnall "Pixie." The machine is a low-wing monoplane, with the two halves of the wing hinged to the lower longerons of the fuselage and braced by two streamline steel tube struts. These struts are attached

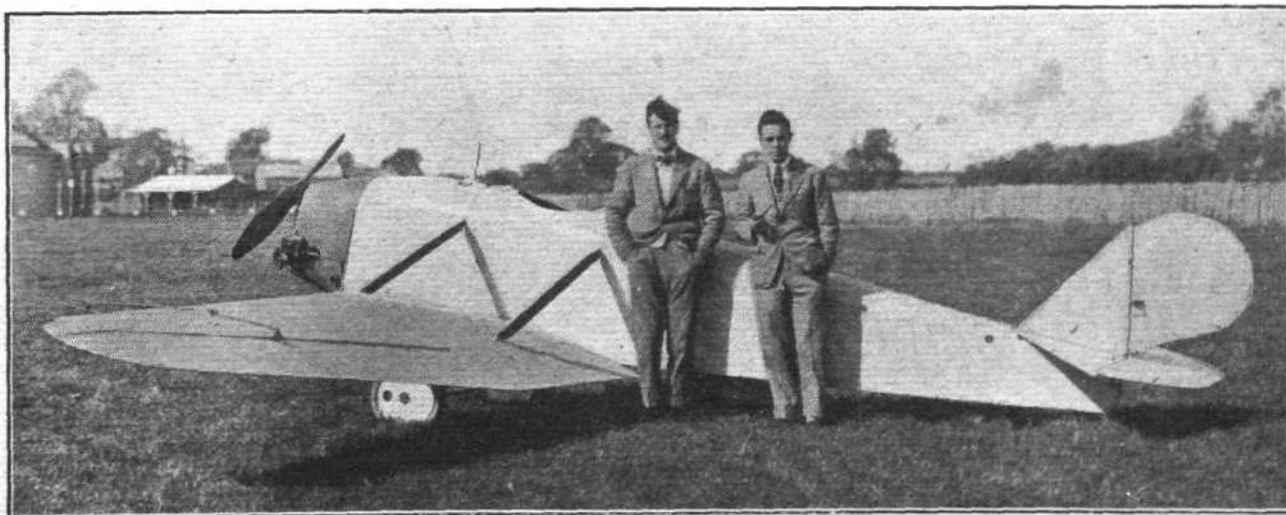


THE PARNALL "PIXIE I": Three-quarter front view.

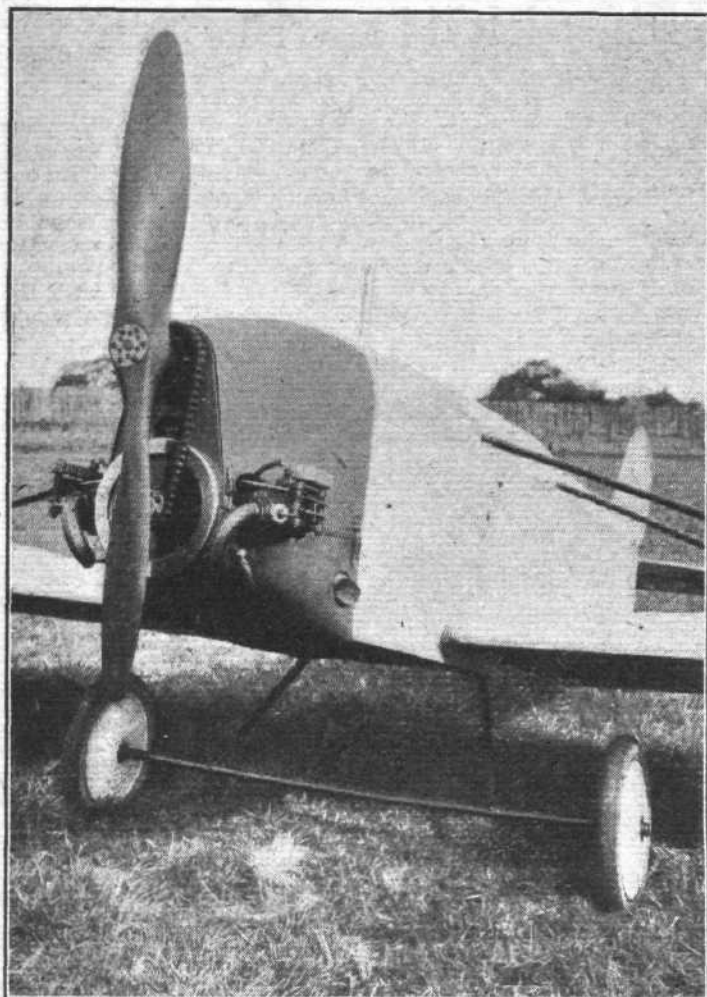
Parnall and Co., was built in two types, one with large wings and a 500 c.c. Douglas engine, and the other with small wings and a 750 c.c. Douglas. Instead of building two complete machines, the one fuselage, chassis and tail were made to serve for both types, the machine being changed from one type to the other by merely changing the engine and wings. The constructional details are the same for both types, so that the following remarks may be taken, except when otherwise stated, to refer to both. Incidentally, the idea of interchangeable wings of various areas might be worth further development when we come to consider the marketing of light 'planes, and it would appear that the idea might be extended to include a change from single-seaters to two-seaters. This we do not claim as an original idea, as something of the sort has already been done (by Capt. Barnwell while he was associated with the Bristol Aeroplane Company), but it seems that in the case of a light 'plane the "side-car" idea has a good

deal to recommend it. At any rate, we offer the suggestion for what it is worth. It should not be difficult to design a fuselage in which a central portion can be interchanged for one with two seats and carrying a larger wing or wings. Thus, if the owner-pilot desires to go alone, but to travel reasonably fast, he would use the machine with small wings and one seat. If he wished to take a passenger he would merely disconnect the central portion of the fuselage and replace it with the two-seater, large-wing portion. In other words, he would attach his "side-car."

However, to return to the Parnall "Pixie." The machine is a low-wing monoplane, with the two halves of the wing hinged to the lower longerons of the fuselage and braced by two streamline steel tube struts. These struts are attached to the upper longeron of the fuselage by a very neat adjustable fitting, which allows of setting the angle of incidence and dihedral within very fine limits. A sketch of this fitting was published last week. The wings themselves are of normal construction, the spars being of built-up I-section, with the web resting in grooves in the top and bottom flanges, somewhat after the fashion of a wing rib. The material used is spruce. The wing design is, however, unusual in that, although over the inner portion of the wing the two spars are parallel, from just outside the points of attachment of the bracing struts the rear spar slopes forward to meet the front spar at the tip. Thus any tendency on the part of the rear spar to deflect under aileron loads is prevented by the front spar, which is placed at a deeper part of the section. In fact, according to how the spar positions are chosen, it would probably be possible so to design the wing that the tendency to warp under aileron loads was in a direction



THE PARNALL "PIXIE I": Three-quarter rear view. Standing by the machine are Capt. Macmillan, the pilot, and Mr. Bolas, chief engineer and designer of the Parnall machines.



THE PARNALL "PIXIE I": View of the engine mounting, transmission and under carriage. The latter is of unusual type, consisting of two sloping struts carrying the axle. There is no springing beyond that provided by the flexibility of the steel tubes.

opposite to the usual, *i.e.*, to produce auto-warpage. The drawback to this construction appears to be that a joint in the rear spar is necessary, but probably it is no difficult matter

to provide adequate strength at the joint without adding undue weight.

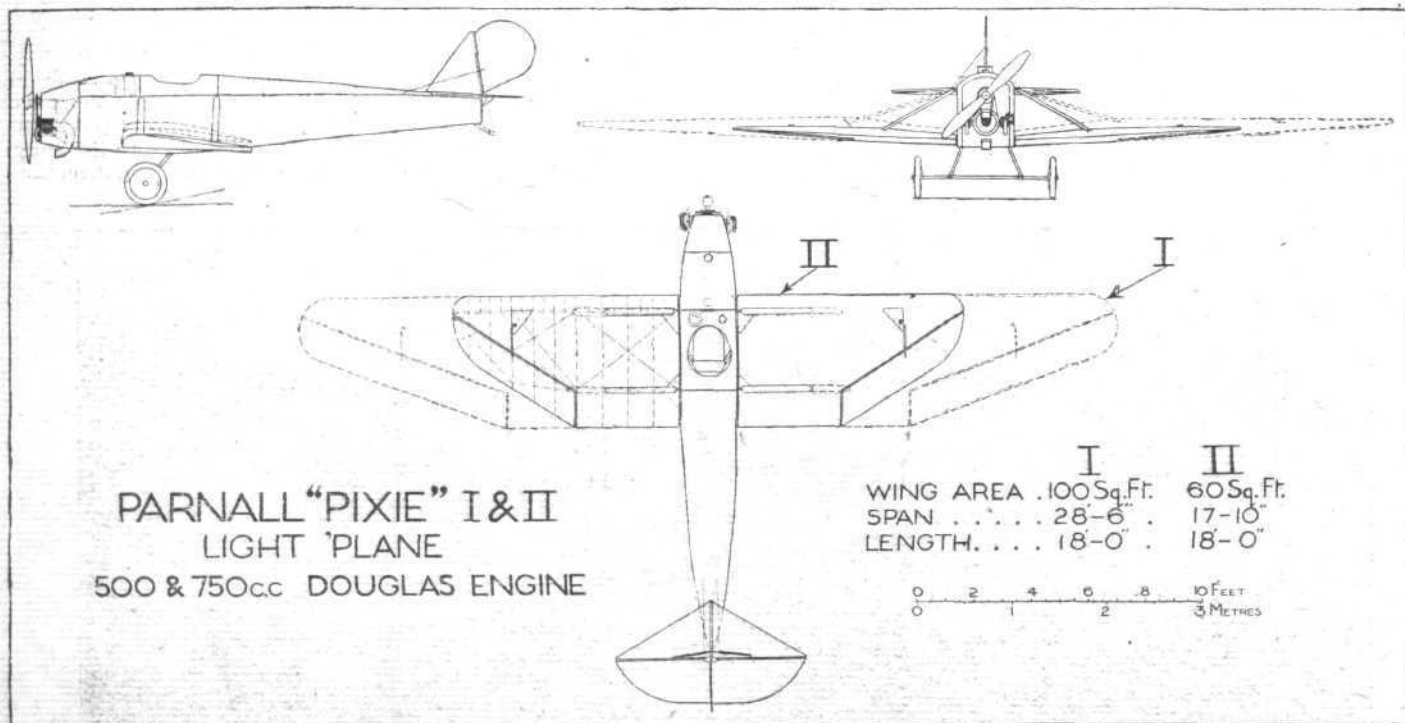
The ailerons are of usual type, but are operated "differentially," in the manner invented by Mr. Hagg of the de Havilland Aircraft Company, *i.e.*, the downward-moving flap moves through a smaller angle than that traversed by the upward-moving flap on the opposite side. A sketch showing the levers and setting used for this purpose was published last week.

The fuselage of the Parnall "Pixie" is of rectangular section, fabric covered over the greater portion of its length. The longerons are of spruce, and diagonal struts, attached to the longerons by ply-wood plates, form the bracing of the structure. In the forward portion of the fuselage, where the stresses are more severe, these struts are attached to the longerons by metal plates. The pilot's cockpit is placed between, and above, the wing spar roots, and the view obtained is extremely good, except straight down, where it is, of course, obstructed by the wing. The controls are of usual type, *i.e.*, a "joy-stick" for elevator and ailerons, and a foot bar for the rudder.

The Douglas engine is mounted on a structure of six steel tubes from the front ends of the longerons proper, a fireproof bulkhead separating the engine from the pilot's cockpit. In both types a chain reduction gearing of $2\frac{1}{2}$ to 1 is employed, the propeller shaft, with journal and thrust ball bearings, being mounted on a sheet-steel bracket bolted to the top of the crank-case and surrounding the magneto. The petrol tank is carried in the deck fairing over the front portion of the fuselage, and as the engine is mounted low gravity feed has been possible. The induction pipe is jacketed and heated by exhaust gases carried to the muff by short branch pipes from the main exhaust pipes.

The undercarriage is of unusual design, and consists of an inverted V of steel tubes, with its apex in the top of the fuselage and the "legs," which slope forward, carrying the tubular axle. The wheels are placed some distance out from the point of attachment of the struts, so that the axle itself not only gives a wide wheel track, but also provides a certain amount of springing. The elasticity of the tubes provides a certain amount of springing, aided by the deflection on the pneumatic tyres, and the amount of wheel travel actually obtained is approximately the same as that of other light planes using rubber shock absorbers, *i.e.*, about 3 or 4 ins.

The main characteristics of the Parnall "Pixies" are as follows: Length, o.a. (both types), 18 ft. 0 ins.; span (type I), 28 ft. 6 ins., (type II) 17 ft. 10 ins.; maximum chord (both types), 4 ft. 7 ins.; wing area (type I), 100 sq. ft., (type II) 60 sq. ft.; weight, empty (type I), 276 lbs., (type II), 279 lbs.; weight loaded (type I), 457 lbs., (type II) 460 lbs.; wing loading (type I), 4.57 lbs. per sq. ft., (type II) 7.66 lbs. per sq. ft.



THE PARNALL "PIXIE" LIGHT PLANE: General arrangement drawings, to scale. The "Pixie I" has large wings and a 500 c.c. Douglas engine, while "Pixie II" has smaller wings and a 750 c.c. Douglas. In the front elevation and plan the wings of "Pixie I" are shown in dotted lines. It was on "Pixie II" that Capt. Macmillan established, at Lympne, a speed "record" of 76.1 m.p.h.

LIGHT 'PLANE AND GLIDER NOTES

Those wishing to get in touch with others interested in matters relating to gliding and the construction of gliders are invited to write to the Editor of FLIGHT, who will be pleased to publish such communications on this page, in order to bring together those who would like to co-operate, either in forming gliding clubs or in private collaboration.

At Colchester's famous "Oyster Feast," held on Thursday, October 18, Sir Samuel Hoare, Secretary of State for Air, referred to the light 'plane competitions that were held recently at Lympne, and stated that the competitions had so impressed his technical advisers and himself that they were very anxious to make use of any development in this direction, and that it might be found that these small light, cheap machines could be used in the training programme, in which case economical training would result. Sir Samuel added that he was going to offer, on behalf of the Air Ministry, prizes for two-seater light 'planes next year. Details would, he said, be announced later.

WE are extremely glad to note that the Air Ministry is taking a "benevolent" view of the light 'plane, and, as we indicated in our Editorial Notes last week, we feel sure that it should be possible to establish a carefully-graded course in flying, beginning with machines that are very stable and yet manoeuvrable, and finishing up with fairly fast, quickly-controlled types. The Lympne week showed that already both types are in existence. For keeping pilots' "hands" in it would be difficult to imagine anything better than the type of light 'plane which is very sensitive and requires careful handling, and by using light 'planes for the purpose the cost to the country should be relatively negligible. For providing a maximum of flying at a minimum of cost in connection with the R.A.F. Reserve the light 'plane again would seem to score heavily, and the low cost would enable much greater numbers of machines to be kept in commission, thus ensuring more frequent flying practice for individual pilots, a point of the greatest importance.

WHILE fully realising the as yet untouched possibilities of the use by the R.A.F. of the light 'plane, we do not think for a moment that its usefulness ends there. To the private owner-pilot of moderate means the type offers unlimited possibilities. Not expensive in first cost, and very cheap to operate, the light 'plane should appeal to hundreds of sportsmen at home, while in the Colonies and Dominions, where roads are none too good and railways few and far between, the light 'plane should prove a boon to land owners residing far from the nearest town. Here the fact that the light 'plane is not tremendously fast will not greatly matter, since even a speed of 50 m.p.h. is far and away faster than any other means of transport available.

BEFORE, however, the light 'plane can be confidently recommended to the general public, we still have a certain amount of development work to do, and as yet we have had insufficient experience to be able to say definitely what size

engine will be necessary to ensure a machine that will answer all general purposes. The 750 c.c. engines at Lympne did very well, but they were not perfect, and it seems likely that the majority of private owner-pilots will wish to be able on occasion to take a passenger with them, or, if not a passenger, at least a certain amount of luggage, goods, etc. In this connection we would call attention to a suggestion made in the article on the Parnall "Pixie," that the problem of the aerial "side-car" machine, in which the middle portion of the fuselage could be exchanged for another having two seats and a larger wing, seems particularly well worth studying in connection with the light 'plane. The idea is not original as far as we are concerned, but to us it seems that its application to the light 'plane is particularly promising.

WHILE at Lympne we discussed with several of the leading aircraft firms the advisability of holding, in the near future and while the interest of the general public is still focussed on the light 'plane, a meeting at one of the London aerodromes. The idea was well received, and we are therefore pleased to learn that it has been decided to hold a light 'plane demonstration at Hendon on Saturday next (October 27), where, consequently, Londoners will be able to see the latest addition to the aeroplane family at close quarters.

AT the moment of writing it is not known what sort of meeting is contemplated, but presumably there will be a cross-country handicap race to Bittacy Hill and back. In the good old day, when the week-end meetings at Hendon did more towards maintaining public interest in flying than did any other event, we used to be able to watch the machines the whole time, and thus the interest was kept alive. A similar arrangement should be successful in the case of light 'planes. In addition to any actual competitions that may take place, doubtless there will be demonstration flights on the various machines to show their manoeuvrability, strength, etc., so that, although no very extensive programme is to be expected, the notice being too short for that, visitors should certainly not have a dull time, always provided the weather is not too unkind.

THOSE of our readers who remember Hendon in the old days should bear in mind, however, that as the aerodrome has not been much used of late years they must not expect to find everything quite as perfect and comfortable as it used to be. But even at that, we think that Hendon at its worst would be a good deal better than Croydon at its best. Certainly it is infinitely more easy to get to, even without the tube extension that, next spring, will place the aerodrome within less than half-an-hour of Piccadilly Circus. The very short notice will not allow of advertising the meeting extensively, and thus it may be expected that the crowds will not begin to approach in numbers those of a Derby Day. Nevertheless, we are quite sure that those who go to Hendon on Saturday—realising that this is but an isolated meeting at the wrong time



A Row of Light 'Planes at Lympne: In the foreground the Avro biplane, No. 5. The spectators on the left are following the evolutions of Capt. Broad on a de Havilland monoplane.

of the year, and that the accommodation should not be expected to be quite what it was of old—will not regret a visit.

THERE is something very fascinating in watching the flying of a light 'plane. For one thing, its speed is low enough to enable spectators to follow the various evolutions closely, which is next to impossible in the case of modern high-speed machines that go by in a flash. Secondly, the light 'plane is so manoeuvrable that it can carry out evolutions at quite low altitudes, thus again affording spectators an opportunity to follow every manoeuvre. In the case of a race much the same remarks apply. Especially should this be so in a race around the pylons.

In the old days, it will be remembered, air racing at Hendon used to be famous for the races "round the sticks," as we used to say. It may be that the "sticks" are now for the most part removed, and the weather may be such as to render a cross-country race more advisable, but if the wind is not too strong it should not be difficult to arrange a race around the outskirts of the aerodrome. The prizes need not be at all large, and we recall many occasions from the years before the War when impromptu races were got up at five minutes' notice by that indefatigable aerodrome official, Capt. Tyrer. Something of the sort may happen again, on Saturday, if conditions are at all favourable, as it is quite on the boards that some visitor with a few pounds to spare will be so

"enthused" by the flying of these little 'planes that he will, on the spur of the moment, offer a small prize to be competed for there and then.

JUST as we are going to press, and after the above notes were written, we have received from the Royal Aero Club the following information:—

In order that the public may have an opportunity of seeing the light 'planes which recently created so much interest in the competitions at Lympne, the Royal Aero Club has arranged for a demonstration to be given at the London Aerodrome, Hendon, on Saturday next, the 27th inst., commencing at 2 p.m. The programme will include a taking-off and landing competition and speed races round a course on the aerodrome. Exhibition flying demonstrating the easy control, general utility and safety of the various types will be given.

The following pilots and machines will take part: Capt. H. A. Hamersley, M.C. (Avro biplane), B. Hinkler (Avro monoplane), Major H. Hemming (De Havilland monoplane), Capt. H. S. Broad (De Havilland monoplane), Capt. N. Macmillan, M.C., A.F.C. (Parnall "Pixie"), Capt. S. F. Cockerell, A.F.C. (Vickers "Vigette"), F. P. Raynham (Handasyde monoplane), Flight-Lieut. P. W. S. Bulman, M.C., A.F.C. ("Hurricane" monoplane), J. H. James (A.N.E.C. monoplane), Maurice W. Piercey (A.N.E.C. monoplane), G. P. Olley (Handley Page monoplane).

Prizes of £150 have been presented by Sir Charles Wakefield, Bart.

THE "MUMMERT" (U.S.A.) LIGHT 'PLANE

NEARLY two years ago Harvey C. Mummert, aeronautical engineer for the Curtiss Aeroplane and Motor Company, produced a successful miniature biplane, known as the "Baby Vamp," fitted with a 25 h.p. Lawrence engine (see FLIGHT, January 19, 1922). The advent of the "aerial motor-cycle" (i.e., light 'plane or "motor glider"), together with the results obtained with the "Baby Vamp," have apparently been the cause of Mr. Mummert's latest efforts, for, according to our American contemporary *Aviation*, he has designed and built a tiny monoplane fitted with a stock-model Harley-Davidson motor-cycle engine.

This new machine is a single-seater, cantilever monoplane, designed to meet the present demand for a low-powered, inexpensive aeroplane, having a comparatively large cruising radius and capable of being operated at a very low cost. These requirements, it would seem, are fulfilled by this little "Mummert" light 'plane, which weighs only 300 lbs. empty, and has a fuel capacity for about 12 hours' sustained flight at 75 m.p.h., with a consumption of approximately 50 miles per gallon.

From a constructional point of view this machine has several interesting details. The fuselage is constructed of three-ply maple veneer, nailed and glued to laminated spruce diaphragms, or bulkheads, which encircle the three longerons. It has a very roomy and comfortable cockpit, and the vision ahead is extremely good. For vision in a downward direction a window is provided on each side by covering a portion of the wings with transparent celluloid at the wing roots.

The main wing spars are continuous across the fuselage, and are fastened to the top longeron fittings with small pins, which are easily removed, and the wings quickly detached. These spars are of the box-girder type, and the ribs consist of two cap strips glued to a solid web of $\frac{1}{8}$ in. veneer. Doped fabric is used for the wing covering, but the ailerons are veneer covered.

The vertical and horizontal tail surfaces are faired into the fuselage, and, owing to the amount of side area aft provided by the latter, it has been possible to keep down the size of the vertical tail surfaces to a minimum without interfering with the stability and control of the machine.

A special type of variable gearing between the stick and the control surfaces prevents the machine from being too sensitive on the controls at high speeds, and ensures ample movement of the control surfaces for small stick displacements at low speeds.

The landing gear is of tubular construction, and the shock absorbers are located within the fuselage.

The engine is a stock model Harley-Davidson, mounted on a light pressed-steel frame, which is bolted to the fire-proof bulkhead on the front end of the fuselage. The petrol and oil tanks are located between the pilot's cockpit and the engine, and are readily accessible for filling. A Reed-type duralumin airscrew is fitted, having a diameter of 4 ft. 4 ins. and a maximum r.p.m. of 2,800.

The overall span of the "Mummert" monoplane is 20 ft. and the o.a. length 14 ft. 1 in.



AN AMERICAN LIGHT 'PLANE: The "Mummert" cantilever monoplane, fitted with a standard Harley-Davidson motor-cycle engine.

U.S. AERIAL BOMBING TESTS ON BATTLESHIPS

In the summer of 1921 the U.S. Government carried out some interesting tests when certain ex-German war vessels—ranging from a submarine to a battleship—were bombed by combined U.S. Navy and Army aeroplanes. We gave a brief account of these tests at the time, which appeared in *FLIGHT* for September 15, 1921.

We give below some particulars of another similar series of tests recently carried out by the U.S. Government, the targets in this case being the two obsolete U.S. battleships *Virginia* and *New Jersey*. The object of these tests, it is officially stated, was not to try out bombs of the best known efficiency to sink modern ships, but rather were tests of accuracy of bombing from considerable heights. Also, they were intended to demonstrate the practicability of employing air service units, operating from emergency aerodromes, at any desired point. It is pointed out that the sinking of these ships was incidental to the main problem, and the fact that the *Virginia* and the *New Jersey* were sunk by well-aimed bombs in 26 mins. and 7 mins. respectively should not be taken as conclusive evidence in connection with the battleship v. aeroplane controversy.

The tests under review were carried out off Cape Hatteras, N. Carolina. Both battleships were of the same class and were built in 1904. Their normal displacement was about 16,000 tons, their draught 26 ft., and the waterline length 435 ft. They carried four 12-in., eight 8-in., twelve 6-in., and twelve 3-in. guns. Amidships there was an armour belt of 11 ins., the armour at other points ranging from 3 to 6 ins. The armour belt was 8 ft. wide, 7 ft. of which being below the water-line.

The type of machine used was the Martin Bomber. This machine is suitable for both day and night work, and is fitted with two 400 h.p. Liberty engines. The span is 71 ft., the length 46 ft., and the height 14 ft. Sufficient fuel (310 gals.) is carried for a flight of 5 hours at a cruising speed of 80 m.p.h. with full load, giving a radius of action of 200 miles. The normal ceiling (full load) is 8,000 ft., but fitted with a super-charger this is increased to 20,000 ft. The armament of the Martin bomber is as follows: Five Lewis guns, providing an arc of fire to the front, side and rear; and below by means of a tunnel gun installed in the tail. The useful load is 2,200 lbs., making it possible to carry either twenty 100-lb. bombs, seven 300-lb. bombs, four 600-lb. bombs, two 1,100-lb. bombs, or one 2,000-lb. bomb, in any desired combination.

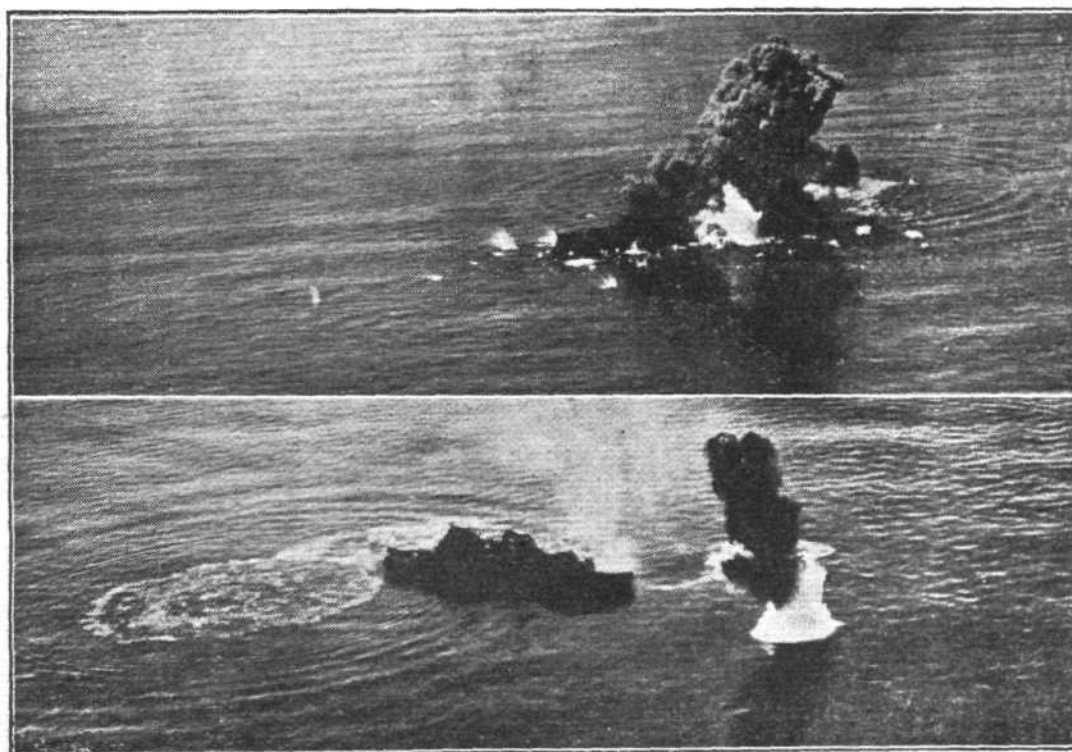
The first attack of the day was made about 9 a.m. by a flight of six Martin bombers, under Lieut. Austin, each carrying four 600-lb. bombs. They flew directly from Langley Field, 180 miles away, and when they reached the targets they were flying at 11,000 ft. Twenty bombs in all were dropped, four of which were direct hits on the deck of the *New Jersey*. Three others dropped within 20 ft. alongside, the most dangerous location for shots to reach.

The next attack, upon the same vessel, was made by eight Martins (Capt. Harvey), each carrying one 2,000-lb. bomb. This time they started from the temporary aerodrome near Cape Hatteras, and released their bombs from a height of 6,000 ft. Some trouble was caused by the bombs sticking in their racks, which somewhat affected the accuracy of the shots, with the result that only one bomb fell close enough to do any serious damage. Most of these bombs fell within about 200 yds. of the stern of the ship.

By this time the *New Jersey* had a pronounced list to port, and on examination it was found that she had a hole in her sides amidships, some of the deck equipment was torn off, and one of the direct hits on the stern had lifted about 20 ft. of armoured deck plate back, leaving a large hole directly aft of the stern fighting mast.

The third test took place about noon, when another flight of seven Martins (Lieut. Crocker), carrying fourteen 1,100-lb. bombs made an attack on the *Virginia* from 3,000 ft. The first three bombs fell off the starboard side, without, apparently, doing much damage. Number four, however, hit the ship squarely on the stern, aft of the firing mast. It appeared to go right through the protective decks, and immediately a terrific explosion of flame and black smoke enveloped the stern of the ship. As the smoke cleared it was seen that both masts, the three stacks, armour plate from the after turret, and everything on the deck except the turrets and crane were a mass of tangled wreckage. Then the next two bombs fell, one to port and the other to starboard, but the following shot appeared to graze the side of the ship, the bomb sinking into deep water and exploding directly under the *Virginia*. A mass of black smoke and water shot up into the air from the starboard side, and it was obvious that the ship was doomed. The remaining bombs all fell more or less close, and meanwhile the *Virginia* began to settle down. She listed to starboard, and as she turned over on her side the bottom plates could be seen caved in for a long distance, and water poured out from numerous openings in the hull. Then, 4 mins. after the commencement of the attack, she sank by the stern.

It was not until later in the afternoon that the next bombing test was carried out on the *New Jersey*, which had been kept from sinking by her watertight compartments. On this occasion the seven Martins each dropped a 2,000-lb. bomb from 3,000 ft. None of these bombs fell in the danger zone. Half an hour later a flight of two bombers arrived with 1,100-lb. bombs. The first two bombs did not appear to have any effect, but No. 3 fell close to the port side amidships, with very much the same effect as with the fatal shot in the case of the *Virginia*. The *New Jersey*, like the *Virginia*, rolled slowly over on her side—one of the masts crashing into the water the meanwhile—turned bottom-upwards, exposing to view the caved in plates, and sank, 7 mins. after the lucky bomb left the Martin.



U.S. bombing tests: Cause and effect. Above, the U.S. Battleship "Virginia" receiving a direct hit by a 1,100-lb. bomb dropped by a Martin bomber from 3,000 ft., and, below, half a minute later, just before she sank.

RECONSTRUCTION OF THE ROYAL AIR FORCE

Sir Samuel Hoare on the New Policy

SPEAKING at a meeting at Colchester, under the auspices of the Colchester Division Conservative Association, on October 17, the Secretary of State for Air, Sir Samuel Hoare, made a very important statement on the subject of the reconstruction of the R.A.F. Referring to the problems of post-War defence, Sir Samuel called attention to the urgent necessity of re-creating, at the end of the War, new permanent defence forces for peace-time conditions, and to re-create them if possible without overwhelming expense. Mr. Bonar Law, the Air Minister said, realised the urgency of these problems within almost a few days of his taking office, and appointed a strong committee of enquiry to deal with them. Sir Samuel then referred to the subject of better co-operation between the three fighting forces, and in this connection stated that, without wishing to argue whether or not the establishment of a Ministry of Defence would be a wise move, such a drastic change was impracticable at the moment. For the time being they were consolidating the duties of the Committee of Imperial Defence, the body which was to co-ordinate the work, the policy, and, to some extent, the finance of the three fighting departments. Out of that improved organisation, he said, there might or might not in the future emerge a Ministry of Defence. At present that was as far as they could safely go, and he described it as a very great improvement upon the loose arrangements of the past.

"I am most anxious," the Air Minister continued, "that the Air Ministry and the Air Force should be kept in the closest contact with the War Office and the Admiralty and the two great and ancient forces that they administer. It would be a calamity to the Air Force if the development of air power isolated the Air from the Land and Sea. The Air Force and the Air Staff wish to maintain the closest co-operation with the Army and Navy. They are ready to welcome to the full the help and experience of the two older forces, and, although there may have been controversies between them, and there have been controversies between the services long before the Air Force was created, they are ready and anxious to make full use of the Government's proposals for co-ordination, and to make their relations as close and friendly as possible between themselves and the senior services. Moreover, I may tell you, as evidence of this policy of full co-operation, that I have recently been able, thanks to the kindly help of the Army, to bring into the Air Ministry several distinguished General Staff officers, from whose presence and experience I expect an even closer co-operation between the Army and the Air Force than we have had in the past. As to the Navy, I am equally anxious that the co-operation should be no less close, and I have already made proposals for carrying out to the full the recommendations of the Committee of Imperial Defence upon the relations between the Navy and the Air Force. I want to see the sea knowledge of the Air Force and the air knowledge of the Navy greatly strengthened by a freer interchange of Naval and Air Force officers and particularly by the presence of distinguished Naval officers in the various departments of the Air Ministry that deal with air work over the sea. In a word, I want to see these inter-service controversies ended, and I am sanguine enough to hope that the air will often be the bridge between the land and the sea."

Turning to the conditions which necessitated drastic changes in the home air defence policy of Great Britain, Sir Samuel recalled that when he took office he found that the Air Forces for home defence consisted of three squadrons only, owing to the reductions that had been made and to the fact that three-quarters of the small Air Force left were absent on foreign service. The Air Minister again emphasised the fact that the possibility of a war with our old ally France was not even contemplated, but that, even if there were to be no

war for a hundred years, if there were to be no international dispute between Great Britain and any other country for a generation, and if we and the French were to remain, as he hoped we should remain, the best of friends for a century, even then he was convinced that the shores of this country and the capital of this Empire must not be left at the mercy of any attack, particularly of a sudden and terrible attack from the air. Sir Samuel then briefly recalled that as soon as he came into office he obtained permission to expand the Air Force for home defence by 15 squadrons. But these 15 squadrons were not, he said, sufficient, and it was on that account that Mr. Bonar Law referred the whole question of air defence to the Committee of Imperial Defence. Acting on the great principle that "British Air Power must include a home defence force of sufficient strength adequately to protect us against air attack by the strongest air force within striking distance of this country," and on the recommendations of the Committee, it was decided to create, with as little delay as possible, a Home Defence Force of 52 squadrons, so organised as to make further expansion possible if that should prove necessary.

Indicating the general lines upon which progress with the expansion scheme is being made, Sir Samuel stated:—

"We want to make the new Force as efficient as possible but we also want to organise it as economically as possible. On the ground of economy, therefore, we are going to embody in it a substantial element of what I will call non-regular personnel. Speaking generally, we are going to have three kinds of squadrons. In the first place, there will be a backbone of highly trained regular squadrons for the difficult work of fighting. But, in the second place, there will be what I will call, for want of a better word, special reserve squadrons and auxiliary squadrons for the less difficult work of bombing. The reserve squadrons will be maintained on approximately one-third regular personnel and two-thirds reserve personnel, the reserve personnel to be obtained by the enlistment of skilled artisans, who will come up for short periods of training in the immediate neighbourhood in which they live.

"The auxiliary squadrons will be manned and organised on a basis somewhat similar to that of the Territorial Army, each squadron being provided with a small nucleus of regular personnel for instructional and administrative purposes. Otherwise they will be composed entirely of non-regular personnel, and the units will be linked with the large industrial centres.

"Thirdly, and this is a feature of the expansion to which I wish to draw your particular attention, we hope to be able to carry out a great deal of the work of these three kinds of squadrons that is now carried out by regular personnel by civilian personnel. In the regular squadrons we hope to be able to carry out at least 25 per cent. of the work—that is, almost all the non-technical work—by civilian labour. For almost all the regular squadrons, for all the special reserve squadrons, and all the auxiliary squadrons it is hoped that all the repair work, other than minor running repairs, will be carried out entirely by civilian labour and that all additional stores depôts that may be required will be manned by civilians."

Sir Samuel then called attention to the advantage of getting large numbers of British citizens directly interested in air development and of expanding the air sense of all classes of the community.

In conclusion the Air Minister dealt at some length with the vital importance of getting the great Dominions to help the Mother Country, and he quoted the Australian Prime Minister's words that what the Empire needs is a free interchange of men, money, and markets.

EMPIRE AIR COMMUNICATIONS

Statement by the Secretary of State for Air before the Imperial Economic Conference

At the meeting of the Imperial Economic Conference on October 19 the Secretary of State for Air, Sir Samuel Hoare, made an important and interesting statement on air communications. Sir Samuel said he wished to make a fairly general statement, and that if members of the Conference desired particulars on any point of detail he would be happy to put them in direct communication with the technical experts at the Air Ministry. He then proceeded to give a brief summary of the developments that have taken place in air transport since the last Imperial Conference in 1921.

Sir Samuel referred to the recommendations of the committee of enquiry, now commonly known as the "Hambling Committee" (whose report was published in *FLIGHT* at the time), whose principal recommendation was that a single strong company should be formed to take the place of the three or four smaller companies now operating the cross-Channel air services. On this subject, Sir Samuel said: "Apart from the question of the cross-Channel services, it has this bearing upon Imperial communications. If this national company can be safely started—and I have good reason to think it will

be started—it will be much easier to develop the longer Imperial routes by aeroplane in the future. In my own view, these longer aeroplane routes will probably have to be developed by international arrangements, very much as the longer train routes have been developed across Europe. It will be much easier to negotiate these international arrangements and to develop the longer air routes if there is a single strong national company, upon which the Government will have substantial representation."

The Air Minister then dealt with the experiments with air mails between Plymouth and Belfast *via* Manchester, pointing out that these experiments indicated a saving in time of 13½ hours between Plymouth and Manchester and of 19½ hours between Plymouth and Belfast.

Referring to the enquiry of the Civil Aviation Advisory Board into the possibilities of an Imperial air route by aeroplane, resulting in a recommendation that research should be undertaken on the question of types of machines, and that tenders should be invited, Sir Samuel said: "I did not find myself in a position to produce the money in my estimates to carry through the whole of these proposals, but I was able to set aside a sum for building an experimental civil aeroplane capable of undertaking the long-distance journey that would be required in the Imperial air route. The designs are now almost ready, and we hope to be able to put in hand the building of a type of machine of that kind at once."

As an example of actual practical experience in connection with an Imperial air route, the Air Minister quoted the Cairo-Baghdad service, and stated that, in spite of the fact that this route of 866 miles lay nearly entirely over desert country, they had been able to carry out successfully 65 journeys out of 69, while the weight of mails had more than doubled in the second year of running.

Turning to the cross-Channel air services, the Air Minister called attention to the significant fact that the number of passengers that use these services is increasing in a remarkable degree. In 1920, for instance, 4,400 passengers were carried; in 1921, 7,800; in 1922, 8,200; and in 1923, *i.e.*, the year ending this autumn, no fewer than 13,500. For a period of thirty-two months 2,000,000 miles were flown without a single serious accident to passengers or staff. Sir Samuel then stated that, although as far as Europe was concerned he thought civil aviation must to some extent be dependent upon Government subsidies for some time to come, he drew the general conclusion that heavier-than-air travel was becoming much more reliable and was getting on to a much sounder economic basis.

Airships

Having dealt with the heavier-than-air side of the subject, Sir Samuel turned his attention to the question of airships, recalling that at the last Conference there was a good deal of discussion, but that nothing much came of it. More recently certain proposals were made to the British Government, notably by Commander Burney, and in view of their importance a special committee of the Committee of Imperial Defence was appointed to examine these suggestions. The result was that the Cabinet came to the conclusion that airship operation ought to be resumed in some way or other, and that the best way was to subsidise a private company on the general lines suggested by Commander Burney. (As the main points of the scheme have already been published in *FLIGHT*, we omit this portion of the Air Minister's statement.)

Continuing, Sir Samuel said: "Supposing that scheme is practicable and works out on anything like the lines I have suggested, it might prove of very great value in expediting the carriage of mails and the communications between London and various distant parts of the Empire. Even if it were only inaugurated as far as Egypt, it would still make a considerable difference in the time that would be taken for the carriage of mails or passengers between London and Australia. London

to Cairo by the present means of transport takes from five and a half to eight days. By airship, on the other hand, supposing Commander Burney's proposals are not unreasonable, the time would only be two days. In other words, even so far as Egypt the saving would be from three and a half to six days.

"I understand that the normal time taken now to India would be fourteen and a half days, whereas by airship, if these estimates are anything like correct, it would be five days. London to Perth is set down as twenty-eight days, whereas by airship it is estimated to take eleven days. If those figures therefore are correct, or even nearly correct, there is a very considerable saving, a saving of seventeen days.

"The Government have accepted in principle the Burney scheme, and during the last few weeks discussions have been going on upon various points of detail. Speaking generally, however, I can tell you that the financial side of the scheme is, in the main, agreed, and, as far as I can see, there is no reason why the scheme should not be agreed in full.

"I am most anxious to get the contract signed as quickly as possible, for this question has been going on now for a very long time. At the same time, I am most anxious that those Dominions that are interested in the question should have an opportunity of giving me their views on the subject, and, if possible, of helping the British Government, financially or otherwise, in carrying the scheme into effect. But let me make it quite clear that the British Government have definitely settled—assuming that the contract can be satisfactorily agreed—to go ahead with the scheme, and we do not wish to make that in any way conditional upon the help of any Dominion or Dominions. If they can help us, naturally we should be very grateful, and naturally we should regard it as a further means of making the scheme a success. I would end by throwing this out as a suggestion to the Conference: that it might be well either for the representatives of those Dominions who are interested in the development of airships to take the matter up with me at the Air Ministry, and I could then discuss with them the actual details of the agreement that we hope to make with Commander Burney, or you might think it better here at this Conference to appoint a small committee to deal with the kind of points that may be in the minds of delegates."

During the discussion that followed the Air Minister's speech several Dominion representatives raised various points, and it would appear that whereas India was naturally very much interested in the airship scheme, the representatives of South Africa and Australia and some of the Crown Colonies were more concerned with the development of heavier-than-air services and aeroplanes for survey work over difficult country. Mr. Amery, First Lord of the Admiralty, who has made a special study of the airship question, expressed the opinion that the airship had now reached a stage of development where its success was assured. He suggested as a possibility of airship travel that airships in the future might go north-about to Canada, and to the West Indies by the south-about route followed by Drake. Mr. Amery made the somewhat surprising statement that giant airships could be built very much stronger than the smaller vessels, and he thought that the safety of airship travel would be immeasurably increased by surrounding the inflammable gas with an envelope of inert gas.

The general conclusion reached at the meeting was that a Committee of the Conference should be appointed to go into the whole subject of the Burney scheme so as to enable the Dominions to gather complete information on all the details. A suggestion warmly welcomed by the Air Minister was that some machinery should be established whereby the knowledge and experience in air matters gained at home and in the Dominions could be correlated and made available for each Dominion or Colony.

Inverted Flight

UNDER the title "The Manœuvres of Inverted Flight," Squadron-Leader R. M. Hill, M.C., A.F.C., read an extremely interesting paper before the Royal Aeronautical Society on October 18. The paper, which is a very long one and would have occupied, if published in full, something like ten pages in *FLIGHT*, dealt with the reasons for the investigation of inverted flight, and gave a brief historical outline of the earlier work. The latter part of the paper was devoted to the intricacies of carrying out the manœuvre of inverted flight on a number of different types of machines, and the paper leaves one with a feeling almost of awe at the cool manner in which these experimental pilots carry out the most hazardous manœuvres while yet watching all that is happening. It

seems likely that this paper will be the last on this particular subject to be presented by Squadron-Leader Roderic Hill, who has now left Farnborough for the Staff College at Andover. We quite realise that this change was inevitable unless the officer in question were to sacrifice his career in the R.A.F. in order to remain at the particular kind of work for which he has proved himself so eminently suited. Nevertheless, one cannot help regretting that the system of promotion is so inelastic that, in an exceptional case like this, it is impossible to retain the services of an officer for a very specialised form of duties. The paper is one of surpassing interest, and we would recommend all who are interested to obtain a forthcoming issue of the *R.Ae.S. Journal*, in which it will be published in full.

THE ROYAL AERO CLUB OF THE U.K.

OFFICIAL NOTICES TO MEMBERS

MOTOR GLIDER DEMONSTRATION.

THE Royal Aero Club has arranged to hold a Demonstration of the Motor Gliders which took part in the recent competitions at Lympne, at the **London Aerodrome, Hendon**, by arrangement with the Grahame-White Co., Ltd., on **Saturday next, 27th inst., from 1.30 to 5.0 p.m.**

Members and Associates will be admitted free on presentation of their Membership badges. Motor cars, 2s. 6d.

Offices: **THE ROYAL AERO CLUB,**

3, CLIFFORD STREET, LONDON, W. 1.

H. E. PERRIN, Secretary.

Personals

Married

Capt. **JAMES F. HART**, D.S.C., late R.A.F., only son of Mr. and Mrs. F. W. Hart, Walkerton House, Leslie, Fife, was married on October 8, very quietly, at Binstead Church, to **EDNA RUSSELL**, younger daughter of the late Mr. F. G. Ambrose and Mrs. Ambrose, and grand-daughter of Mrs. Anley, The Firs, Binstead, I. of W.

The marriage of Flight-Lieut. **LLEWELLYN ROLLS BRIGGS** to Miss **MARY STEWART LAWTHORP**, daughter of Mr. and Mrs. Robert Lawther, and grand-daughter of the late Mr. Reginald Dykes Marshall, of Castlerigg Manor, Keswick, took place at St. Saviour's Church, Walton Street, on October 6. Flight-Lieut. C. Tancred was best man.

Wing-Commander **CLAUDE GRENVILLE GOULD**, son of Mr. and Mrs. Claude Gould, of Pilton Abbey, Barnstaple, was married on September 28, in London, to **Helene**, daughter of the late General and Madame **TARSKY-BAGDASSAROFF**, of Petrograd.

REGINALD FRANK HOWARD (late R.A.F.), elder son of Frank Howard, of Oxford Road, Putney, was married on October 8, at St. Augustine's, Brighton, to **FLORENCE EMMA**, only daughter of **CHARLES** and Mrs. **JEUCHNER**, of Meadows Croft, Florence Road, Brighton.

Flying Officer **A. S. KEEP**, R.A.F.R. was married on October 3, at St. John's, Yeovil, to **MARJORIE CHRISTINE**, second daughter of Mr. and Mrs. **BRUCE**, The Knoll, Yeovil.

GUY MAINWARING KNOCKER, R.A.F., only son of Colonel and Mrs. Knocker, Folkestone, was married on September 25, at St. Mary's Church, Tadcaster, by the Rev. D. E. James, rector of Newton Kyme, assisted by the Rev. J. Rowland Jones, vicar, to **CYNTHIA MARY LAMB**, only daughter of Mr. and Mrs. Charles Burgoyne Lamb, Inholms, Tadcaster.

Flight-Lieut. **K. M. ST. C. G. LEASK**, M.C., R.A.F., son of Dr. and Mrs. Leask, late of Singapore, was married on August 31, at the British Consulate, Constantinople, to **LYDIA**, widow of Y. GENOT, and daughter of General Modestoff, of Tver.

Flight-Lieut. **R. S. LUCY**, A.F.C., only son of Mr. and Mrs. Arthur John Lucy, of Newbury, Broadheath, near Worcester, was married on October 18, at St. Mary's, Knightwick, to **TONE CUMING**, only daughter of Admiral Cuming, C.B.E., D.S.O., D.L., and Mrs. Cuming, of The Turnpike House, Knightwick, Worcs.

FREDERICK STRATTEN RUSSELL, D.S.C., D.F.C., C. de G., son of Mr. and Mrs. Wm. Russell, of St. Andrew's, Newquay, was married on September 25 at St. Gabriel's, Swansea, to **GWENETH KATE MOY-EVANS**, M.B.E., daughter of Mr. and Mrs. J. Moy-Evans, of Swansea.

R.A.F. Wireless Re-union

ARRANGEMENTS have been made for the Annual Re-union Dinner for past and present officers of the W/T School and Squadron, Royal Air Force, to take place in London, on December 5. It is to be regretted that it will not be possible to issue direct invitations this year to all ex-officers interested, owing to the fact that certain records, containing lists of addresses, have been mislaid. The Secretary will therefore be glad if those concerned will regard this announcement as a personal invitation. Applications for tickets (which will be 10s., inclusive) should be made to the Secretary, Re-union Dinner, Wireless School, R.A.F., Winchester.

World Flight Machines

APROPOS the proposed World flight by the Portuguese, Capt. Cabral, and the machine he is reported to be using, there appears to be some misunderstanding by either the manufacturers of the Fokker machine or by the Captain himself, judging by an announcement recently in English by the Fokker people. In their weekly Bulletin recently they say that "The Portuguese Captain Sacadura Cabral has placed an order for some Fokker seaplanes for his forthcoming flight round the world, preferring these machines to those of France

JOHN ARTHUR YONGE, D.F.C., late Captain, R.A.F., was married on October 4, at Toronto, to **MARY MACMILLAN KERR**, of Lochranza, Arran.

To be Married

THE engagement is announced between **ALFRED DUNSTAN EDMUND SELBY ADES**, R.A.F. Reserve, eldest son of Mr. and Mrs. A. W. ADES, of Broadstairs, and **NORA ELTON**, only daughter of Mr. and Mrs. J. H. WHITWORTH, of Tunbridge Wells.

An engagement is announced, and the marriage will shortly take place, between Lieut.-Col. **S. JANSON** (late R.A.F.) youngest son of the late George Janson, of Rio de Janeiro, and Mrs. Janson, of Emperor's Gate, and Miss **DOROTHY MARY BUSHBY**, eldest daughter of the late Mr. P. W. BUSHBY, of Torwood, Torquay, and the late Mrs. JAMES, of Braydon Hall, Minety, Wilts.

A marriage has been arranged between Air-Marshal Sir **JOHN SALMOND**, K.C.B., C.M.G., D.S.O., Air Officer Commanding the British Forces in Iraq, younger son of Major-General Sir William Salmond, K.C.B., and the late Lady Salmond, and the **HON. MONICA GRENFELL**, elder daughter of Lord and Lady DESBOROUGH.

Death

Squadron Leader **VYVYAN ARTHUR HEMMING ROBESON**, R.A.F., M.C., Croix de Guerre, who died on October 17 at Tewkesbury, after an operation, aged 29, was the only son of Capt. and Mrs. Robeson, of Wellington, Leckhampton Road, Cheltenham. Squadron Leader Robeson was last April appointed Commander of the R.A.F. Experimental Station at Farnborough. He was Squadron Leader of No. 24 Scout Squadron during the German push in the spring of 1918, when in two months it accounted for 99 German machines and brought all its own planes and stores safely behind the British lines.

Items

Lieut. Aviateur **WILLY COPPENS**, Air Attaché at the Belgian Embassy, has returned to London from Italy.

Mr. **GEORGE JOHNS**, representing the National Aeronautic Association of U.S.A., was entertained to luncheon at the Royal Aero Club on Monday, October 22, 1923. Lieut.-Col. F. K. McClean, A.F.C., was in the chair, supported by Lieut.-Col. A. Ogilvie, C.B.E., Lieut.-Col. M. O. Darby, Lieut.-Col. W. A. Bristow, and Lieut.-Commander H. E. Perrin, Secretary. Mr. Johns gave an outline of the international races to be held in America next year, viz., the Schneider Cup and Pulitzer Races. It was decided to hold a joint meeting of the Racing Committee and representatives of the Society of British Aircraft Constructors on Monday next, the 29th inst., at the Royal Aero Club, to meet Mr. Johns.

or England. We call to mind that the famous pilot used a 'Fairey' machine for his trans-Atlantic flight last year, and that he had lately received a good offer from the 'Fairey' Company for this occasion. While visiting the aviation companies in France the Captain was feed in the presence of a large audience at the Sorbonne, who would naturally have been pleased to receive his order on this occasion, simultaneously introducing their machines into Portugal. Nevertheless after inspecting the Fokker seaplanes, he selected the type T.III.W, for the Round-the-World flight."

Now, with every admiration for the Fokker design, somebody is being led astray over this, as the facts as we learn them are that no "good offer" was ever made by the Fairey Aviation Company. On the contrary; following negotiations failure to do business was due to refusal to reduce prices. Further, we understand from Mr. Fairey himself that there was no reason for them to reduce prices as they are so extremely full of orders, and, therefore, no point in making reductions for the Portuguese expedition. The Fairey Company are already building a machine for Tymms for a British round-the-world flight, and Mr. Fairey considered that any money they were prepared to spend in this direction was due to the British side and not to a foreign attempt.



NOTICES TO AIRMEN

Switzerland : Height of Flight : Basle Customs Landing Ground.

1. Height of Flight.

The regulation regarding height of flight has been revised and is now as follows:—Over an inhabited area aircraft must fly at such a height that it is always possible to land in gliding flight outside such an area. The minimum height of flight over an inhabited area is 500 metres (1,640 ft.) except when circumstances prevent aircraft from remaining at this altitude, or in cases where arrangements are made to waive this rule on account of special local conditions.

A minimum height of 500 metres must also be maintained when flying over an aerodrome.

2. Basle.

Civil customs landing ground, owned by the Société Aviatik, Basle; situated 3½ kms. E. of Basle on the south side of the Rhine; Lat. 47° 33' N., Long. 7° 38' E.; at an altitude of 885 ft.

(No. 78 of 1923.)

Holland : Landing Grounds

1. The following landing grounds are available for use in cases of emergency only:—

(i) *Deventer*.—Lat. 52° 15' N., Long. 6° 11' E.

Situated on meadow land in the N.E. part of the Teuge or Bergwide, approximately 1½ km. E. of the IJssel river and 2 km. E.S.E. of Deventer railway station.

(ii) *Milligen*.—Lat. 52° 13' N., Long. 5° 45' E.

Situated on the military drill ground at Milligen, 15 km. W. of Apeldoorn and 2 km. E.S.E. of Garderen.

(For further details apply to Air Ministry for Notice No. 82.)

(No. 82 of 1923.)

Holland : Aerial Lighthouses

It is notified that the following aerial lighthouses are now in operation in Holland:—

(i) *Soesterberg*, (ii) *Waalhaven* (Rotterdam), (iii) *Schiphol*, (iv) *Scheveningen* (v) *Kootwijk*.

Particulars of position, character of light, times of operation, etc., are given in detail upon the Air Ministry Notice.

(No. 85 of 1923.)

NOTICE TO GROUND ENGINEERS

High Tensile Steel Fork Ends A.G.S. 168 to 178 and High Tensile Steel Turnbuckles A.G.S. 138 to 149

1. High tensile steel fork ends, A.G.S. 168-178, have been found unsafe, and their use on any aircraft is prohibited. Ground engineers should, therefore, make a careful examination of all aircraft under their charge with the object of replacing any such fork ends by mild steel fork ends conforming to A.G.S. 412-422, or B.E.S.A. Specification S.P.3.

The following table gives the A.G.S. numbers of the H.T.S. fork ends and of the M.S. fork ends which replace them:—

A.G.S. Nos. of prohibited H.T.S. fork ends:

168 169 170 171 172 173 174 175 176 177 178

A.G.S. Nos. of M.S. fork ends superseding the above:

412 413 414 415 416 417 418 419 420 421 422

M.S. fork ends are identified by the flats on the ends of the forks, together with the counterboring which extends down each side of the fork gap, whereas H.T.S. fork ends are readily distinguished by the small ribs at the sides of the pin holes.

2. The use of high tensile steel turnbuckles, A.G.S. 138-149, on civil aircraft is still permitted, but, as these turnbuckles are all of War-time manufacture, they should be carefully re-inspected to ensure that no faults have developed during service. The particular defects to be guarded against are fine hair cracks and flaws in the steel ends, and season-cracking of the barrels. (This class of turnbuckle may be readily identified by the A.G.S. number stamped on each turnbuckle.)

3. When replacing any high tensile steel turnbuckle by a mild steel turnbuckle conforming to A.G.S. 490-497, particular care should be taken to ensure that the former is replaced by its equivalent in the latter class. The following table gives, in each class, the respective A.G.S. numbers of the turnbuckles

which are interchangeable in respect of strength and diameter of pin:—

A.G.S. Nos. of old design of H.T.S. turnbuckle:

140 141 142 143 144 145 146 147 148 149

A.G.S. Nos. of mild steel turnbuckles of equivalent strength:

491 492 506 493 507 494 508 495 496 497

Note.—The one exception is M.S. turnbuckle A.G.S. 490, for which no strictly interchangeable H.T.S. size exists, as A.G.S. 138 and 139, which it replaces, were made with two eye-ends only and not with the customary fork and eye-ends.

4. In the case of seaplanes and flying boats, turnbuckles with mild steel barrels should not be fitted owing to their liability to rust; turnbuckles with delta metal barrels (B.E.S.A. Specification B.1) should be fitted to this class of aircraft.

5. No Certificates of Airworthiness will be issued, or existing Certificates of Airworthiness renewed, in respect of any aircraft on which high tensile steel fork ends are fitted.

(No. 2 of 1923.)

Napier "Lion" Engine Valves and Seatings

1. The fitting of valves and valve seatings in Napier "Lion" engine cylinders requires special attention in order to prevent distortion, overheating and stretching of the valves in service.

2. When new valves or seatings have been fitted to an engine during overhaul, it is essential that the faces of both valves and seatings should be examined after the first two hours' running and trued up by grinding in, or machining if necessary, before the engine is approved for flight.

3. Re-cutting of valve seats must be done with the seating screwed in position. The thickness of the flange of the seat after re-cutting, with normal width of valve face, must not be less than ¼ in.; this permitting of a total reduction of flange thickness of ½ in.

4. Cylinder headers should not be removed from cylinders or valve seatings extracted unless for the purpose of actual renewal.

(No. 3 of 1923.)

Napier "Lion" Engines : Precautions

1. Type Engines : Compression Ratio.

Only the Series II low compression Napier "Lion" engines are approved as airworthy for civil aircraft.

The high compression engines are for use under the service conditions of the Royal Air Force.

The actual compression ratio of an engine is stamped on the name plate, and is also noted in the log book.

(a) *High Compression*.—5.8 to 1 is the standard high compression, and this type of engine is rated at 450 b.h.p. at normal r.p.m.

(b) *Low Compression*.—5 to 1 is the standard low compression, and this type of engine is rated at 425 b.h.p. at normal r.p.m.

2. Fuel.

It is essential that the fuel used should contain at least 30 per cent. of aromatic hydro-carbons, viz.:—

(a) If an Eastern or Borneo spirit is used, it is necessary that 15 per cent. of benzole be added.

(b) If an American spirit is used, it is necessary that 25 per cent. of benzole be added.

3. Connecting Rods.

Only the heavy type connecting rods to assembly No. 10823 may be fitted. Medium and light type rods must be replaced. Where light type rods have to be replaced, new pistons will also have to be provided owing to the variation in the gudgeon pin diameter.

It is further recommended that oil filters be opened up, cleaned and examined after each flight. Should particles of white metal be found, the engine should be dismantled for thorough examination and overhaul.

4. Cancellation.

Notice to Ground Engineers No. 10 of 1921 is cancelled.

(No. 4 of 1923.)

R.A.F. Flying Training Manual

A NOTICE TO AIRMEN (No. 83, 1923) announces that Part 2 of "Royal Air Force Flying Training Manual: Applied Flying" (Air Publication, No. 928), which should be of value in the study of elementary air navigation, has just been published, and may be obtained from H.M. Stationery Office (Kingsway, W.C. 2), or through any bookseller, price 2s. 6d.

Aero Golfing Society

THE Autumn Meeting will be held at St. George's Hill Golf Club, Weybridge, on Thursday, November 1 next. In the morning the Medal round will be played for the Autumn Challenge Cup, presented by Cellon (Richmond), Ltd. In the afternoon medal foursomes will be played for prizes presented by Sir Henry White Smith.

CORRESPONDENCE

The Editor does not hold himself responsible for opinions expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters intended for insertion in these columns.

SAFETY IN FLYING

[2075] I am surprised at the peculiar theory advanced by Capt. Curtis in his letter on this subject in your current issue. He seems to think that the stalling speed of a machine is altered to an appreciable or even considerable extent by errors in rigging, which are really very slight when the large angle of incidence at stalling speed is considered. I grant that it is possible to alter the stalling speed 1 or 2 m.p.h. by giving the outer portions of the planes a large "wash out" or "wash in," especially if the wing section has a sudden drop of the C_L after the maximum, but this sort of thing does not occur in the rigging of a "standard machine."

I rather suspect that Capt. Curtis is struggling with the extraordinary theory which used to be very common in the R.A.F., that the performance of a machine can be radically altered by varying the angle between the wing chord and some arbitrary line on the fuselage, which is referred to in rigging as the "angle of incidence," and is confused with the angle of the chord to the direction of flight. Incidentally, it would seem advisable to coin a new name for the chord-datum-line angle used in rigging.

The A.S.I. indication suggested would only be accurate for full load, of course, and a partially loaded machine would have a rather larger margin of safety; however, I leave the suggestion for what it may be worth.

W. E. GRAY

Berwick-on-Tweed

IMPERIAL AIRSHIP SERVICE AND INDEPENDENT COMPANIES

[2076] The recent flight of the ex-German airship L.72, now the French naval airship "Dixmude," when she covered a distance equal to that from England to India in 118 hours' flying, and the performances of the American airship Z.R.1 must bring home to our Colonial visitors the great possibilities of the airship for linking up the Empire.

The important point at the moment is to start the service in the most efficient manner. The writer was the originator (on the technical side) of the scheme for the England-Australia service now being considered by the Government; and, though it has been modified and reduced of late, to meet Air Ministry and financial requirements, he is naturally biased in the favour of some such arrangement, and considers it good in view of the conditions laid down by the Government. From the point of view of the financial firms concerned, the conditions are indeed very favourable, but from a national point of view they appear fundamentally unsound.

Under the present arrangement a private company will erect airship stations in Egypt and India, to start with, and eventually at other places on the route to Australia. By far the larger part of the capital of the company will be spent in buildings and plant of a permanent nature, and a very small portion on airships—the present proposal is to build one large one, of a new and experimental pattern only, to begin with. The British Government have to guarantee interest at the rate of 10 per cent. on all the capital employed, which they are to begin to recover after the company is earning profits at the rate of 10 per cent. per annum. The results of this policy will be:—

(1) All the airship stations on the Imperial route will be in the hands of one firm, and other companies will not be able to use them.

(2) When Service airships come into existence, as they must, the Government will be at the mercy of one firm for accommodation, repairs, and supplies, unless they go to the expense of erecting new stations of their own.

A far sounder method of procedure would appear to be as follows:—Let each Colony and Dominion erect its own airship station, all fittings being standardised throughout the Empire, and the Home Government assisting the smaller Colonies, such as Singapore, who would not be expected to bear the expense unaided. All airship companies would be entitled to use the bases at a fixed scale of charges, and to erect their own mooring masts, just as the mail steamship companies have their own buoys in a harbour. These airship stations would remain in Government possession and be available for service airships in peace and war.

The establishment of airship services will come of itself—once it is proved that they will pay. The simplest method of doing this is to run the existing airships on each portion of the route and publish the exact cost; lending them to one of the shipping firms running to Australia, who would provide booking facilities, etc. A firm exists willing to do this, with no profit to themselves, except the experience gained. We have in this country a sister airship to the French-German one, and two others quite capable of running this experimental service. A new one of larger size should be ordered. A few months' running by these service ships should test and prove (1) whether the route was feasible; (2) the cost of running, and whether it was necessary to subsidise a commercial firm, and, if so, the amount of the subsidy needed.

Under this scheme it is believed that no subsidy would be required; it is the cost of the bases which hampers any commercial concern, just as the entire upkeep of Liverpool and New York harbours would hamper the Cunard. It would be open to any number of independent airship lines to use the bases—thus encouraging the greatest development in the air. A monopoly would be impossible.

The taxpayer would get far better value for his money than under the present Government conditions, and the commercial firms a better chance of their financial reward. If the Indian and Australian Governments would spend half a million on air stations and the Home Government a million in erecting others in Egypt and Singapore, they would have property which would bring them a steady income from harbour dues as airship traffic develops, and commercial airship companies could be formed under the most favourable conditions.

When the England-Australia route is established the service airships should survey and test South Africa and the Canadian routes, leaving them to be developed by private companies when proved to be feasible. Should it be found that assistance is necessary to start a service on any route, it would be a comparatively easy matter, as only the interest on capital locked up in the actual airships would have to be guaranteed. If an average load of 50 per cent. can be obtained, any airship service should pay well. This load will be forthcoming as soon as the public realise that a modern commercial airship is safe, comfortable, and speedy.

F. L. M. BOOTHBY,
Commander, R.N. (retired)

c/o Royal Colonial Institute,
Northumberland Avenue, London.

LONDON TERMINAL AERODROME

Monday evening, October 22, 1923

THERE appears at last to be definite news of an agreement between the four operating firms on the question of the £1,000,000 scheme. The latest to hand is that the Handley Page, Daimler, and Supermarine combine, and the Instone Air Line, have withdrawn their separate schemes, and are arranging to co-operate in the running of an entirely new scheme submitted by Mr. G. Holt-Thomas. I understand that it is practically the same scheme which Mr. Holt-Thomas offered to put up two years ago, and that the finance is coming from the same quarter.

The Goods Traffic "Boom"

This year the goods traffic has risen to such an extent that the lack of passengers has not been felt in anything like the

same way as previous years. The Instone Line, for instance, has far more goods consigned to Cologne than they can handle. Today there are at least 30 complete motor-cycles, many of them with side-cars, already delivered to the aerodrome, awaiting an opportunity to be shipped by air to Cologne, in addition to at least 7 tons of tobacco and several tons of woollen goods, all consigned by air to Cologne.

No further progress appears to have been made with the night service to Paris, although I understand that negotiations are still going on, and that, in addition to the Handley Page 0.400, the Air Union will run a machine, and that the R.A.F. will also participate in this service.

The new winter time-tables are in working order, the Daimler machines only going as far as Hamburg.

THE ROYAL AIR FORCE

London Gazette, October 9, 1923

Stores Branch

Flying Offr. E. G. Steer is transf'd. to Reserve, Cl. B.; Oct. 11.

Medical Branch

J. S. Wilson, M.D., B.A., is granted a short service commn. as Flight-Lieut. with effect from, and with sen. of, Sept. 12.

Reserve of Air Force Officers

Class A.—Flight-Lieut. W. W. Wakefield is granted a commn. in rank stated; Oct. 3. Flying Offr. N. R. Melville resigns his commn.; Oct. 10. The follg. are granted commns. on probation in the General Duties Branch in the ranks stated: Oct. 9:—

Class A.A.—Pilot Offr. J. D. Parkinson.
Class B.—Pilot Offr. A. Higham.

Princess Mary's Royal Air Force Nursing Service.

The follg. ladies are confirmed in their appts. as Staff Nurses:—Miss Elsie A. Nunn; Sept. 1, 1922. Miss Ethel W. Buckley; Dec. 16.

Memoranda.

The permission granted to 2nd Lieut. J. W. Brown to retain his rank is withdrawn on his enlistment. 2nd Lieut. (Hon. Capt.) C. E. Bowden (unemployed list) relinquishes his temp. commn. on appt. to a commn. in the Regular Army; Aug. 7, 1920.

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the R.A.F. are notified:—

General Duties Branch

Squadron Leader R. S. Maxwell, M.C., D.F.C., to No. 24 Sqdn., Kenley. 1.11.23.

Flight Lieutenant L. J. MacLean, M.C., to R.A.F. Cadet College, Cranwell. 24.10.23.

Flight Lieutenants: H. K. Thorold, D.S.C., D.F.C., A.F.C., to Air Ministry. 15.10.23. A. G. Taylor, A.F.C., to Elec. and Wireless Sch., Flowerdown. 11.10.23. L. M. Elworthy, to No. 39 Sqdn., Spittlegate. 22.10.23. J. Durney, to Air Ministry. 22.10.23. R. M. Trevelyan, M.C., to No. 39 Sqdn., Spittlegate. 22.10.23. S. L. G. Pope, to No. 55 Sqdn., Iraq. 24.9.23. L. M. Elworthy, to remain at No. 207 Sqdn., Eastchurch. Posting to No. 39 Sqdn., as previously notified, is hereby cancelled.

Flying Officers: J. S. Hughes, to R.A.F. Base, Calshot (No. 480 Flight). 15.9.23. W. J. Umpleby, J. F. Mehigan, and G. B. Holmes, all to R.A.F. Base, Leuchars. 15.9.23, pending allocation to Flights. R. A. Whyte, to No. 5 Flying Training Sch., Shotwick. 4.10.23, on transfer to Home Estab. F. L. Hopps, A.F.C., to R.A.F. Base, Calshot, for course of instruction in Aerial Navigation. 15.10.23. J. S. Hughes, to No. 1 Flying Training Sch., Netheravon. 10.10.23. R. M. Thomas, to Sch. of Balloon Training, Larkhill. 19.9.23, on transfer to Home Estab. S. McD. Watson, to Sch. of Army Co-operation, Old Sarum. 1.9.23.

Flying Officers: A. E. Lindon, M.B.E., to No. 2 Flying Training Sch., Duxford. 22.9.23, for course of instruction on transfer to Home Estab. E. S. Osborn, to No. 2 Sqdn., Sth. Farnborough. 22.9.23, on transfer to Home Estab. A. H. Padley, to No. 1 Group H.Q., Kenley. 22.9.23, on transfer to Home Estab. L. H. Weedon, to No. 207 Sqdn., Eastchurch. 15.10.23. W. Cay Williams, to No. 24 Sqdn., Kenley. 1.10.23. A. K. Bamber, to Inland Area Aircraft Depot, Henlow. 1.10.23. J. H. Tanner, to Sch. of Army Co-operation, Old Sarum. 1.9.23. H. E. E. Webbin, to No. 5 Flying Training Sch., Shotwick. 4.10.23, for course of instruction on appointment to a Short Service Commn. G. Todd, to R.A.F. Depot. 9.10.23, on appointment to a Short Service Commn. C. D. Pyne, to No. 4 Flying Training Sch., Egypt. 20.9.23. W. R. B. Annesley, to Aircraft Depot, India. 1.10.23. L. J. Booth, to R.A.F. Base, Leuchars. 17.10.23. A. W. Wood, to No. 4 Sqdn., Sth. Farnborough. 15.10.23.

Flying Officers: A. A. C. Hyde, to No. 24 Sqdn., Kenley. 16.10.23. J. A. McDonald, to R.A.F. Depot (non-effective pool). 23.9.23, on transfer to Home Estab. J. E. V. Lindsey, to R.A.F. Depot (non-effective pool). 5.8.23, on transfer to Home Estab. J. R. Brown, to No. 4 Sqdn., Sth. Farnborough. 19.10.23. H. Hollick-Kenyon, to No. 2 Flying Training Sch., Duxford. 22.10.23. R. H. Stocken, to R.A.F. Depot. 15.10.23, on appointment to a short service commission. J. G. Argles, to Basrah Group H.Q., Iraq. 1.10.23.

Pilot Officers: E. A. C. A. Yearsley, to No. 56 Sqdn., Biggin Hill. 8.10.23. E. B. Forster, to R.A.F. Base, Leuchars. 8.10.23, pending allocation to a Flight. A. Malone, to No. 7 Sqdn., Bircham Newton. 1.10.23, for course of instruction in flying twin-engine machines. C. W. Gore, to Sch. of Army Co-operation, Old Sarum. 8.10.23.

Pilot Officers: N. P. C. Mellor, to No. 7 Sqdn., Bircham Newton. 15.10.23. C. M. O. O. Springfield, to No. 24 Sqdn., Kenley. 15.10.23. E. B. Forster, to No. 29 Sqdn., Duxford. 15.10.23, instead of to R.A.F. Base, Leuchars, as previously notified.

Pilot Officers: F. R. D. Swain, R. V. M. Odbert, and O. B. Swain, all to No. 2 Sqdn., Andover. 22.10.23. L. E. Maynard, to No. 25 Sqdn., Hawkinge. 22.10.23. A. E. Paish, to No. 5 Flying Training Sch., Shotwick. 12.10.23, on

"R.38." Memorial Fund

FROM the income of the above Fund, under the regulations for the second year, a sum of 25 guineas will be offered as a prize for the best paper received by the Royal Aeronautical Society, on some subject of a technical nature in the science of aeronautics. Other things being equal, preference will be given to papers which relate to airships.

The prize is open to international competition. The Royal Aeronautical Society retains the right to withhold the prize in any year if it is considered that no paper is of sufficient merit to justify an award.

Intending competitors should send their names to the Secretary of the Royal Aeronautical Society, 7, Albemarle Street, London, W. 1, on or before December 31, 1923, with such information in regard to the projected scope of their papers as will enable arrangements to be made for their

London Gazette, October 16, 1923

General Duties Branch

Flying Officer E. A. C. Britton, D.F.C., is granted a permanent commission, Oct. 17. F. W. Mundy is granted a short service commission as Flying Officer with effect from, and with seny. of, Oct. 4. The following Flying Officers are transferred to Reserve, Class A (Oct. 12):—J. E. H. Littlewood, C. R. L. Shaw, and A. Turner, M.M. Pilot Officer H. M. Kenyon resigns his short service commission; Oct. 17.

Stores Branch

The following are granted permanent commissions for accountant duties (Oct. 17):—**Flight Lieut.** W. H. Hoile, M.B.E. **Flying Officer** F. H. Wakelord.

The following Pilot Officers on probation are confirmed in rank, and promoted to rank of Flying Officer (June 4):—R. W. Freeman, F. C. Langley, E. C. Green, F. M. Hall, and J. H. Sherer Richards. The following Flying Officers are transferred to the Stores Branch for accountant duties from the General Duties Branch (May 1):—H. E. Cardwell, A.F.C., and B. G. Drake. Flying Officer W. A. G. Goldworthy is placed on half-pay, Scale B, for periods indicated:—Feb. 18 to 19 inclusive, March 28 to 31 inclusive.

Medical Branch

Squadron Leader R. J. Aherne, M.C., is granted a permanent commission; Oct. 17. F. E. Wilson is granted a temporary commission as Flight Lieut., with effect from, and with seny. of, Oct. 1.

Reserve of Air Force Officers

The following are granted commissions in General Duties Branch as Flying Officers on probation, with effect from the dates indicated:—**Class A.**—A. Mackenzie; May 15 (substituted for *Gazette*, May 18). C. H. Holmes; Oct. 8. A. H. Dalton; Oct. 16. **Class B.**—R. C. Crawley, G. L. Hunting; Oct. 16. **Class A.**—Flying Officer A. D. Pearce resigns his commission; Oct. 17.

appointment to a short service commn., on probation, for course of instruction: F. R. Lines, A. S. Hutton, and G. H. Rawlinson, all to No. 24 Sqdn., Kenley. 17.10.23. A. E. St. G. Gratte and H. J. Storey, both to No. 100 Sqdn., Spittlegate. 17.10.23.

Stores and Accountants Branch

Flying Officers: E. W. Lawrence and F. W. Taylor, both to R.A.F. Depot. 15.9.23, on transfer to Home Estab.

Stores Branch

Flight Lieutenants: A. W. Turner, to R.A.F. Depot. 30.9.23, on transfer to Home Estab. R. F. Osborne, to Air Ministry. 3.10.23.

Flight Lieutenant H. L. Woolveridge, to Air Ministry. 1.11.23.

Flying Officers: J. Hobbs, to H.Q. Inland Area. 8.10.23. W. Best, to No. 28 Sqdn., India. 13.12.22, instead of to Aircraft Park, India, as previously notified.

Medical Branch

Squadron Leader D'A. Power, M.C., to Station Commandant, Iraq. 20.9.23.

Flight Lieutenants: L. Game, to R.A.F. Hospital, Cranwell. 8.10.23. J. S. Wilson, M.D., to Headquarters, R.A.F., Middle East, Egypt. 12.9.23, on appointment to a Short Service Commn.

Flight Lieutenants: M. Coghlan, M.B., to Sch. of Technical Training (Men), Manston. 15.10.23. A. W. Comber, to R.A.F. Depot. 8.10.23. F. E. Wilson, to Research Laboratory and Medical Officers' Sch. of Instruction, Hampstead. 1.10.23, for short course of instruction on appointment to a Temporary Commn. (Hon. Sq. Ldr.) G. D. Kerr, to Inspector of Recruiting, London. 1.10.23. J. S. Wilson, M.D., to Engine Repair Depot, Egypt. 12.9.23, on appointment to a Short Service Commn., instead of to H.Q., Egypt, as previously notified. (Hon. Sq. Ldr.) A. G. C. Lovett Campbell, M.B., to H.Q., Egypt. 12.9.23, on appointment to a Temporary Commn.; ditto, to Aircraft Depot, Egypt. 17.9.23. J. J. Boyle (Dental), to H.Q., Egypt. 27.9.23.

Flight Lieutenants: A. F. Rook, M.R.C.P., D.P.H., to R.A.F. Central Hospital, Finchley. 26.10.23. T. Montgomery, M.B., D.P.H., B.A., to No. 1 Sch. of Tech. Training (Boys), Halton. 25.10.23. F. E. Wilson, to No. 1 Sch. of Tech. Training (Boys), Halton. 15.10.23. D. McLaren, M.B., to Basrah Combined Hospital, Iraq. 25.9.23. N. H. Medhurst (Dental), to Aircraft Depot, Egypt. 2.10.23. J. J. Boyle (Dental), to No. 216 Sqdn., Egypt. 29.9.23.

Flying Officer G. Kinnair, to Station Commandant, Iraq. 10.9.23.

Flying Officers: L. P. McCullagh, M.B., to R.A.F. Hospital, Cranwell. 22.10.23. (Hon. Flt. Lieut.) G. R. Hall, M.D., to Research Lab. and Medical Officers' Sch. of Instruction, Hampstead. 8.10.23, on appointment to a temporary commn. for course of instruction. T. V. O'Brien, M.B., and F. W. G. Smith, M.B., B.A., both to Research Lab. and Medical Officers' Sch. of Instruction, Hampstead. 8.10.23, on appointment to short service commns. for course of instruction. T. V. O'Brien, M.B., to R.A.F. Depot. 29.10.23. F. W. G. Smith, M.B., B.A., to R.A.F. Hospital, Cranwell. 27.10.23. W. J. Hutchinson, M.B., to Research Lab. and Medical Officers' Sch. of Instruction, Hampstead. 15.10.23, on appointment to a short service commn. for short course of instruction. H. J. Henderson (Dental), to No. 7 Sqdn., Bircham Newton. 17.10.23.

Chaplains' Branch

Rev. J. A. Jagoe, M.A., to R.A.F. Cadet College, Cranwell. 30.10.23, on appointment to a Short Service Commn. as Chaplain (C. of E.).

examination. The closing date for the receipt of papers will be March 31, 1924.

Papers, which must be submitted in either French or English, should in all cases be typed, and a copy should be retained by the author, as the Society can take no responsibility for the loss of copies submitted to it.

Successful papers will become the absolute property of the Society, and will in most instances be published in the *Journal* of the Royal Aeronautical Society. A signed undertaking must accompany each paper, to the effect that publication has not already taken place and that the author will not communicate it elsewhere until the Society's award is published.

The Society attaches special importance to papers showing original work, and due acknowledgment must be made by the author of the source of any special information.



By DOUGLAS B. ARMSTRONG

Air Mail in Java

DURING the annual trade fair at Bandoeng (Java), held from July 28 to August 12, 1923, a series of air mail flights was organised by the Postal Administration of the Netherlands Indies. A postal aeroplane made the round trip from Bandoeng to Batavia and return daily, except on Sundays and fête days, when a trip was made to Weltevreden. Letters and cards were conveyed at ordinary rates, and were franked with contemporary postage stamps of the Dutch East Indies, postmarked with a special cancellation. A cover "flown" on July 30 has been shown us by Mr. Alan Turton, which bears a large circular cancellation with the inscription "NED. IND. POST.—TELEGRAAF EN TELEFONDIENST" round the circumference, "WELTEVREDENVLIEG POST" in the centre, together with an oblong panel containing the date, surmounted by a roughly-drawn representation of a biplane.

A similar cancellation was employed in connection with an earlier experimental mail flight between Weltevreden and Chéribon on May 7, 1920, when only a very small number of letters were carried. The flight had originally been planned for May 5, which is the date on the postmark, but unfavourable conditions necessitated its postponement. On arrival at Chéribon the air-borne correspondence was impressed with an oval cachet lettered "PER Vliegtuig—7 MEI 1920 x CHERIBON x." Examples of these covers are extremely scarce.

Chinese Air Post

THERE is reason to believe that the Chinese air post service, which was resumed on May 22, 1922, after a lapse of two years, may be indefinitely suspended in the near future. The two lines operating from Peking to Tientsin and Peking to Peitaiho are poorly supported, and now that the Vickers subsidy has been exhausted there is no money with which to carry them on. At present the full set of Chinese air post stamps, with their anachronistic vignette of an aeroplane flying over the Great Wall, are obtainable for a few shillings, but almost any day they may become obsolete.

Aero-Philatelic Societies

As a result of the increasing vogue for the collection and study of air post stamps and postmarks, societies devoted to the cult of aero-philately have sprung up—both in England and on the Continent. The Aero-Philatelic Club of Great Britain is now entering upon its second season of activity. Its objects are: (1) study of all matters relative to aero-philately; (2) dissemination of information thus obtained; (3) the formation of a library; (4) display of air stamps and covers; (5) circulation of monthly exchange packets. Membership is open to British amateur collectors throughout the world, the entrance fee being 10s., and the annual subscription 10s. 6d. The Hon. Secretary is Mr. Harold L. Hayman, 16, Upper Phillimore Gardens, London, W. 8, who will doubtless be pleased to hear from readers of this column who contemplate joining the Club.

Another society for intercommunication between air post enthusiasts is the International Association of Aero-Philatelists, the moving spirit in which is Mr. George H. Jaeger, of 10, Huckstrasse, Libau (Latvia).

ANSWERS TO CORRESPONDENTS

D. W. K. (London, S.W.).—The air cover you mention realises nowadays about £20. The fact that the address is in the handwriting of the air navigator does not affect its philatelic value.

J. F. (Walton-on-Thames).—The address of the Hon. Secretary of the Aero-Philatelic Club is given above. As there were something like 100,000 London-Windsor covers flown their value is small, and they may be had for a few shillings each.

Readers are invited to forward to the Editor of *FLIGHT* letters, etc., bearing aerial stamps or postmarks for mention in this column, as well as out-of-the-way varieties, etc.

THE SOCIETY OF MODEL AERONAUTICAL ENGINEERS

COMPETITION No. 4 for the *Model Engineer's* Challenge Cup was held at the Stag Lane Aerodrome, Edgware, Middlesex. This was won by Mr. L. A. Gray, Mr. F. de P. Green being a good second; Mr. B. K. Johnson, third.

A large number of members were present, hoping to make attempts on the general records, but, unfortunately, the weather was not favourable.

This concludes the programme for the 1923 session, with the exception of the *Model Engineer* competitions. These are open competitions, and anyone who is desirous of entering for same should get into communication with the Hon. Competition Secretary, Mr. C. Bayard Turner, 21, Lanercost Road, Tulse Hill, S.W. 2, who will be pleased to forward full particulars.

The second part of the Photographic Competition closes November 1, and all photos. and entries should be sent to Mr. Turner, of the above address.

Mr. L. Lansdown, of 8, Rotherwick Road, Golders Green, N.W. 5, has formed a Club for Juniors, whose flying ground is at Bunkers Hill, Hampstead Heath Extension. Further particulars will be published shortly.

A. E. JONES, Hon. Sec.

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SIDE-WINDS

SMARTNESS in clothing is not confined to mere civilians, and "Who's your tailor?" is an admiring query in the Services just the same as in ordinary "peaceful" circles. A uniform, if anything, requires more care and attention as to "cut," etc., than does the familiar frock coat or lounge suit, for lack of smartness in a uniform is not only a prominent but a serious fault. The name of Burch, of 401, Strand, W.C. 2, has been well known in the Naval and Military world for some time now, and of late its reputation has been soaring heavenwards—for this tailoring establishment has been specialising in R.A.F. outfits! For example, here is a special offer they make in this respect: Service jacket, slacks, riding breeches, regulation cap and embroidered badge, R.A.F. puttees, and decorations for £14 14s. R.A.F. officers please note.

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IN connection with the Schneider Trophy it is of interest to note, in looking back at past contests in this event, that Cellon Dope has been well to the fore. The winning Sopwith, piloted by Pixton, in 1914, the three British representatives in 1919, the winning Supermarine of 1922, and this year's three British entrants were all doped with this famous dope. We had hoped that the name of Cellon would have been coupled with the name of this year's winner!

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AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: cyl. = cylinder; I.C. = internal combustion; m. = motor. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

APPLIED FOR IN 1922

Published October 25, 1923

- 17,530. L. WATTIER. Hydro-aeroplanes. (182,461.)
- 17,598. VICKERS, LTD., and O. H. D. VICKERS. Automatic control of aircraft. (204,380.)
- 17,707. G. PINO. Floating station for aircraft. (204,390.)
- 17,960. G. M. BLES and J. LITHGOW. Rotary engines. (204,405.)
- 18,506. H. PENWARDEN. Supercharging of I.C. engines. (204,424.)
- 19,002. F. H. FOUNTAIN. Rotary I.C. engines. (204,440.)
- 34,301. F. B. PRATT. Storage rack for planes of aircraft, etc. (204,603.)

APPLIED FOR IN 1923

Published October 25, 1923

- 2,650. R. ESNAULT-PELTERIE. Piston packing. (194,269.)
- 5,115. B. R. PLANCHE. Packing-devices for pistons of rotary engines (200,059.)

FLIGHT

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36, GREAT QUEEN STREET, KINGSWAY, W.C. 2.

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